



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,875	07/30/2003	Garry E. Balthes	29595/82608	7941

7590 04/08/2004

BARNES & THORNBURG  
600 One Summit Square  
Fort Wayne, IN 46802

EXAMINER
----------

BOYD, JENNIFER A

ART UNIT	PAPER NUMBER
----------	--------------

1771

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/630,875

Applicant(s)

BALTHES ET AL.

Examiner

Jennifer A Boyd

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5 pages.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 – 4, 7 – 8, 10 – 17, 20 – 21, 23 – 25 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Spengler (US 6,287,678).

Spengler is directed to a composite structural panel (Title).

As to claims 1, 13 and 26 Spengler teaches a panel comprising a thermoplastic foam core sandwiched between two outer layers that each respectively comprise natural fibers intermixed with thermoplastic material (column 2, lines 30 – 40). The Examiner equates one of the two outer layers to Applicant's "mat", the natural fibers to Applicant's "fibrous material" and the thermoplastic material to Applicant's "binder". Spengler teaches that the natural fibers and the polypropylene fibers which comprise the thermoplastic material are interneedled (column 2, lines 35 – 45), resulting in Applicant's "random orientation". Spengler notes that the thermoplastic fibers have been at least partially melted to form the matrix in which the natural fibers are embedded (column 2, lines 35 – 40). Spengler notes that the air permeability of the core and the outer layers is adjustable and selectable as desired (column 5, lines 25 – 30), therefore, the outer layer can be semipermeable.

Art Unit: 1771

As to claims 2 – 4, 12, 15 – 17 and 25, Spengler teaches that the natural fibers can comprise one or more natural plant fibers such as hemp and kenaf (column 2, lines 64 – 66).

As to claims 7 and 20, Spengler teaches that the thermoplastic material is at least partially melted (column 2, lines 30 – 40), therefore, the material can be considered a “thermomelt binder”.

As to claims 8 and 21, Spengler teaches that the thermoplastic material can be polypropylene fibers (column 2, lines 35 – 45).

As to claims 10 - 11 and 23 - 24, Spengler teaches that the outer layers are heated and compressed (column 4, lines 15 – 30). Spengler teaches that the first outer layer is laid onto the lower mold section 12, the pre-tempered foam core 2 is arranged between the upper and lower mold sections 11 and 12, and these mold sections 11 and 12 are closed and molding pressure is applied in the direction of the arrows P (column 7, lines 50 – 68). See Figure 2. The molding pressure is applied on the top and the bottom of the laminate as indicated by P, therefore, the cross-section, or thickness, of the composite is reduced. Because a relatively low molding temperature is used (column 6, lines 1 – 25), the outer layers would inherently experience insubstantial two-dimensional shrinkage.

As to claim 14, Spengler teaches that the finished composite has remarkable strength and stiffness (column 5, lines 10 – 20), implying that the composite is at least semi-rigid.

Art Unit: 1771

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 – 6 and 18 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spengler (US 6,287,678).

Spengler discloses the claimed invention except for that the outer layers comprise about 50% hemp and 50% kenaf as required by claims 5 and 18 and the outer layers comprise about 25% hemp, 25% kenaf and about 50% binder as required by claims 6 and 19. It should be noted that the amount of hemp, kenaf and binder are result effective variables. For example, as the amount of hemp increases, the laminate becomes more coarse and durable. As the amount of kenaf increases, the laminate becomes higher in strength and has improved acoustic properties. As the amount of binder increases, the laminate becomes more integrated and stiff. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create the outer layers comprising about 50% hemp and 50% kenaf as required by claims 5 and 18 and the outer layers comprise about 25% hemp, 25% kenaf and about 50% binder as required by claims 6 and 19 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the amount of hemp, kenaf and binder in the laminate in order to create a laminate which is high in strength, coarse, durable and has acoustically-desirable properties.

5. Claims 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spengler (US 6,287,678) in view of Foelster et al. (US 6,375,881).

Spengler teaches the claimed invention except fails to disclose that the outer layers comprise about 0.05% maleic anhydride.

Foelster is directed to the production of a fiber-reinforced plastic molding material (column 1, lines 10 – 15) useful for the bodywork or trim of cars, vehicles and aircraft (column 8, lines 45 – 60). Foelster teaches a matrix comprising a thermoplastic polymer such as polyolefin (column 2, lines 40 – 50) and natural fibers (column 3, lines 1 – 40). In one embodiment (Example 8), Foelster teaches a polypropylene matrix with hemp reinforcing fibers and maleic anhydride-modified polypropylene as an adhesion promoter (column 6, lines 25 – 55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include maleic anhydride-modified polypropylene as suggested by Foelster in the outer layer of Spengler motivated by the desire to create an outer layer with high tensile and flexural strength which increases overall strength of the panel.

Spengler in view of Foelster discloses the claimed invention except for that the outer layers comprise about 24.75% hemp, 24.75% kenaf, 50% polypropylene binder and about 0.05% maleic anhydride. It should be noted that the amount of hemp, kenaf, binder and anhydride are result effective variables. For example, as the amount of hemp increases, the laminate becomes more coarse and durable. As the amount of kenaf increases, the laminate becomes higher in

Art Unit: 1771


strength and has improved acoustic properties. As the amount of binder increases, the laminate becomes more integrated and stiff. As the amount of maleic anhydride increases, the laminate has higher tensile and flexural strength. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create the outer layers comprise about 24.75% hemp, 24.75% kenaf, 50% polypropylene binder and about 0.05% maleic anhydride. since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the amount of hemp, kenaf, binder and maleic anhydride in the laminate in order to create a laminate which is high in both tensile and flexural strength, coarse, durable and has acoustically-desirable properties.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1771

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jennifer Boyd  
March 29, 2004

  
**Ula C. Ruddock**  
Primary Examiner  
Tech Center 1700